



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
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M60050.002551
MCAS EL TORO
SSIC #5090.3

August 13, 2001

Mr. Dean Gould
BRAC Environmental Coordinator
Marine Corps Air Station El Toro
Base Realignment and Closure
P.O. Box 51718
Irvine, California 92619-1718

DRAFT SITE CLOSURE REPORT, VADOSE ZONE REMEDIATION, OPERABLE UNIT (OU) 2A, INSTALLATION RESTORATION PROGRAM SITE 24, VOLATILE ORGANIC COMPOUND (VOC) SOURCE AREA, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Mr. Gould:

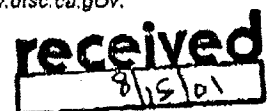
The Department of Toxic Substances Control (DTSC) reviewed the above-referenced document dated June 2001. The closure report presents the results of the vadose zone remediation conducted at IRP Site 24. IRP Site 24 consists of approximately 200 acres in the southwest quadrant of MCAS El Toro that includes two large aircraft hangars (designated as hangars 296 and 297) and several small buildings used for aircraft and vehicle maintenance. During the remedial investigation, two VOC source areas within Site 24 were identified, one for trichloroethene (TCE) and the other for tetrachloroethene (also referenced as perchloroethene (PCE)). Soil vapor extraction (SVE) was the selected remedy for these source areas in the vadose zone in the *Draft Final Interim Record of Decision, OU-2A, Site 24 VOC Source Area, Vadose Zone* (Bechtel National, Incorporated, 1997). Subsequently, the SVE system was installed in April/May 1999. The report recommends that the remediation goals at Site 24 have been attained and requests closure of the vadose zone remediation.

DTSC forwarded concurrence with the proposed verification sampling strategy in a letter dated August 18, 2000. In that letter, DTSC reiterated that VOCs in contaminated groundwater and/or diffusion from fine-grained soil may cause a rebound of VOC concentrations in the vadose zone. After review of the report, DTSC continues to be concerned about off-gassing of VOCs from groundwater and has the following comments.

1. The remedial action objectives (RAOs) for this vadose zone remediation are as follows:

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- Reduce concentrations of VOCs in the VOC source areas to prevent or minimize further degradation of the shallow groundwater unit above the maximum contaminant levels (MCLs) for drinking water.
- Continue vadose zone remediation until VOC soil gas concentrations are below the threshold concentration (concentrations capable of contaminating the shallow groundwater unit above the MCLs).

Groundwater remediation has not commenced and as a result, VOC off-gassing (in addition to diffusion from fine-grained soil) could cause the VOCs in the vadose zone to exceed the respective threshold levels. As a result, the second RAO has not been attained. Therefore, closure of the vadose zone remediation is not appropriate. The SVE system should be maintained to operate in the event that VOC concentrations rebound in the vadose zone.

2. DTSC recommends that the Department of the Navy develop a monitoring plan that includes an appropriate sampling protocol to collect representative soil gas samples for monitoring low levels of VOCs. The vadose zone should be monitored periodically for rebound (with no extraction) of VOCs in soil gas. Please refer to the enclosed comments from the DTSC Engineering Services Unit (ESU) for additional detail.
3. DTSC agrees with the recommendation provided in Section 4.2 that an evaluation of whether the SVE system could complement the Site 24 groundwater remedy will be performed prior to decommissioning.

In addition to the comments provided above, please address the enclosed comments prepared by the DTSC ESU. Please contact me at (714) 484-5395 if you have any questions.

Sincerely,



Triss M. Chesney, P.E.
Remedial Project Manager
Southern California Branch
Office of Military Facilities

Enclosure

cc: See next page

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MEMORANDUM

TO: Triss Chesney, P.E.
Project Manager
Office of Military Facilities

VIA: John Hart, P.E. *Mark Bender for*
Chief, Engineering Services Unit

FROM: Tizita Bekele, P.E. *Tizita Bekele*
Hazardous Substances Engineer
Engineering Services Unit

DATE: August 9, 2001

SUBJECT: VADOSE ZONE REMEDIATION IRP SITE 24, VOLATILE ORGANIC
COMPOUNDS SOURCE AREA - MARINE CORPS AIR STATION, EL
TORO, CALIFORNIA

Document reviewed:

The Engineering Services Unit (ESU) has reviewed the Vadose Zone Remediation IRP Site 24, Volatile Organic Compounds Source Area - Marine Corps Air Station, El Toro, California, prepared by Earth Tech, dated June 2001.

General Comments:

The document states that the remedial action objectives (RAOs) have been met and recommends closure of the vadose zone remediation. One of the two RAOs to reduce volatile organic compounds (VOCs) in the source area appears to be met. However, the second objective, to continue vadose zone remediation until VOC soil gas concentrations are below the established threshold levels has not been attained. Due to off-gassing of VOCs from groundwater, the potential for trichloroethylene (TCE) concentration in the vadose to exceed the soil gas threshold level exists. Therefore, consistent with the RAOs, continued vadose zone remediation may be required until the groundwater (GW) is remediated to a level that will not cause the TCE in vadose zone to exceed the threshold level.

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Specific Comments:

1. Depth-specific soil gas samples were collected from 10 extraction wells using PneuLog sampling conducted from November 29, 1999 through December 3, 1999. The results indicate that concentrations of TCE in four of these wells exceeded the 27 ug/L soil gas threshold level potentially due to off-gassing of VOCs from GW to the vadose zone. TCE was detected in soil gas at concentrations of 59 ug/L in 24SVE147A and at 110 ug/L in 24SVE51 which are close to the baseline concentrations of 58 and 137 ug/L in these wells respectively. We agree with the GW evaluation assessment in the document that TCE concentrations in groundwater remain above the level at which off-gassing could potentially result in soil gas TCE concentrations above 27 ug/L. This indicates the need for vadose zone monitoring of VOCs until the GW is remediated to a level at which off-gassing will not result in exceedance of TCE threshold level in vadose zone. It may also be necessary to continue remediating the vadose zone until the 27 ug/L TCE threshold level is achieved. Therefore, closure of the vadose zone remediation is not appropriate until the second RAO is met.
2. Soil gas samples collected by PneuLog method show higher concentrations of TCE than samples collected during the monitoring and/or the rebound sampling during October 1999 and February 2000. The concern is that while the monitoring, rebound and closure samples show TCE below the 27 ug/L threshold level, the PneuLog evaluation showed generally higher concentrations. Four of the wells had TCE concentrations above 27 ug/L. The rebound and closure samples were collected according to the current 24-hour purging protocol which may have been appropriate when elevated levels of VOCs were present in the vadose zone. However, as the vadose zone around the extraction wells could be the cleanest, the rebound concentrations of TCE are likely diluted and result in low concentrations when samples are collected from extraction wells with the 24-hour purge. Therefore, we recommend that the Navy re-evaluate and propose an appropriate sampling protocol in order to collect representative soil gas samples for monitoring low levels of TCE due to off-gassing from GW and/or rebound as a result of TCE diffusion from fine grain soil sources within the vadose zone.

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